

PATENT SPECIFICATION

NO DRAWINGS

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COMPLETE SPECIFICATION

Effervescent Enzyme Compositions

I, ROLAND YVES MAUVERNAV, a French citizen of, "La Baumette" Riom, (Puy de Dome) France, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to effervescent enzyme compositions, which on dissolution in water, produce mineral waters having enzymatic properties facilitating the digestion, and also to a process for their preparation.

Effervescent tablets which, on addition to water, produce aqueous solutions of detoxifying constituents (e.g. glucuronamide, which has liver detoxifying properties), and release carbon dioxide, which exerts a favourable action on the digestion, are known.

According to the present invention there is provided a solid composition for the preparation of artificial mineral water by dissolution in water, comprising at least one of the enzymes which ameliorate food metabolism and substances causing effervescence when dissolved in water.

Such enzymes are a lipase for the metabolism of lipids, a protease for that of proteins, a cellulase for that of cellulose and an amylase for that of carbohydrates. These compositions may comprise a compound which causes both effervescence and acts as a catalyst or activator for these enzymes, for example potassium carbonate, and a compound giving an acid reaction in solution, for example citric acid.

The relative proportions of these different enzymes will vary, but in practice, an exceptionally satisfactory composition for an effervescent tablet comprises:

Protease	-	-	10,000 units (S.K.B.)
Amylase	-	-	5,000 units "
Cellulase	-	-	2,000 units "
Lipase	-	-	1,000 units "

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Price

It should be noted that it is normally not possible to introduce into the same composition protease and lipase, for the latter absorbs and destroys the protease. To avoid this disadvantage, according to another characteristic of the invention, the lipase or the protease or each is coated with a protective substance which prevents the undesirable phenomenon from occurring for some time after the preparation of the "mineral water". One such protective substance can be, for example, cellulose.

The composition according to the invention is preferably in the form of a tablet with a double core of which the internal core is constituted by lipase coated by a film of protective substance, and the external core is constituted by a mixture of the other enzymes potassium carbonate and a compound of acid reaction in aqueous solution capable of reacting with the potassium carbonate in solution in water to cause effervescence. As a compound of acid reaction in aqueous solution, there can be used, for example, citric acid, which has the advantage of contributing to the flavour of the product.

Such tablets, introduced into a glass of ordinary water, transform this into a glass of gaseous mineral water containing in solution the afore-mentioned enzymes with the exception of lipase, the dissolution of which is retarded for a sufficient time to avoid its adverse action on the protease.

Potassium carbonate is selected in preference to other carbonates, on account of the favourable influence of the potassium ion on the kinetics of enzymatic reactions.

Although the principle of obtaining such effervescent mineral waters by dissolving solid effervescent tablets in water may be known, such an enzymatic gaseous mineral water has never been proposed, and in particular a water comprising in its composition all the enzymes necessary for good digestion

and metallic ions favourable to physiological reactions involved in the administration of these enzymes.

Although this is not essential, it is preferred that the enzymes employed and more especially the lipase, should be of fungal origin, on account of the remarkable activity and stability of enzymes of this origin.

The invention will now be illustrated in more detail below, by one embodiment of the composition by way of a non-limiting example:—

Example of Composition

15	Total enzymatic extract (protease, lipase, amylase and cellulase; generally from pancreas)	250 mg.
	Glucuronamide	400 mg.
	Vitamin C	500 mg.
20	Sodium monofumarate	1950 mg.
	Excipient, here comprising Polyethylene glycol 6000	q.s. 4500 mg.

The various constituents in pulverulent state are mixed and the mixture compressed into tablets in a manner known per se.

WHAT I CLAIM IS:—

1. A solid composition for the preparation of artificial mineral water by dissolution in water, comprising at least one of the enzymes which ameliorate food metabolism and substances causing effervescence when dissolved in water.

2. A composition as claimed in claim 1, wherein said enzymes comprise a protease, an amylase, a cellulase and a lipase the protease being separated from the lipase by a protective substance which prevent lipase from destroying protease on dissolution of the composition in water.

3. A composition as claimed in claim 1 or 2, wherein said substances causing effervescence comprise a carbonate of potassium, preferably potassium carbonate, and a compound giving an acid reaction in aqueous solution.

4. A composition as claimed in claim 3, wherein said compound is citric acid.

5. A composition as claimed in any one of claims 2 to 4, wherein said enzymes are present in the following amounts:

Protease	10,000 units (S.K.B.)
Amylase	5,000 units "
Cellulase	2,000 units "
Lipase	1,000 units "

6. A composition as claimed in any one of

claims 2 to 5, wherein the lipase or the protease or each is coated with a protective substance to prevent undesirable interaction between them.

7. A composition as claimed in claim 6, wherein said protective substance comprises cellulose.

8. A composition as claimed in any one of claims 2 to 7, in the form of a tablet having a double core in which the internal core comprises lipase coated with a protective coating, and the external core comprises said other enzymes, potassium carbonate and a compound giving an acid reaction in aqueous solution and capable of reacting with said carbonate in solution in water to cause effervescence.

9. A composition as claimed in any one of the preceding claims, wherein the enzyme or enzymes is or are of fungal origin.

10. A composition as claimed in claim 9, wherein the enzyme or enzymes comprise lipase of fungal origin.

11. A composition as claimed in any one of claims 1 to 3, in the form of a tablet having the following composition:

Total enzymatic extract (as hereinbefore defined)	250 mg.
Glucuronamide	400 mg.
Vitamin C	500 mg.
Sodium monofumarate	1950 mg.
Potassium bicarbonate	950 mg.
Excipient, here comprising Polyethylene glycol 6000	q.s. 4500 mg.

12. An artificial mineral water prepared from a composition as claimed in any one of claims 1 to 11 by dissolving the composition in water.

13. A process for the preparation of a composition as claimed in claim 11 wherein the appropriate proportions of the different constituents in the pulverulent state are compressed together into tablet form.

14. A process for the preparation of a composition for the preparation of artificial mineral water by dissolution in water according to claim 1, substantially as hereinbefore described.

15. A process for the preparation of artificial mineral water, by dissolving in water a composition according to claim 1, substantially as hereinbefore described.

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